

Scrolling color projection system with lamp synchronization

This application is a 371 of PCT/IB03/03567, ~~filed~~ published
4/8/2004.

The present invention relates to a scrolling color projection system comprising a pulsed lamp and a color scanner for generating a light beam with a plurality of scrolling color fields, arranged to illuminate a display device to produce a projection of an image generated by the display device. The invention also relates to a method of driving such a system.

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Such projection systems are particular in that light from a light source is divided into a plurality of beams, which are sequentially scrolled over a display device, e.g. a reflective LCD, and then projected by means of a lens. Normally, the three beams (R, G, B) are arranged to form three horizontal bars with a total height which is large enough to cover the reflective display. The bars are scrolled, e.g. from top to bottom, and are synchronized with the display so that they complete a scrolling sequence within one picture frame.

In such projector systems, it is advantageous to use a light source, e.g. a UHP (ultra high performance) lamp from Philips, having a superposed current pulse to stabilize the arc position. In a scrolling color type of projection system, such a current pulse may interfere with the color scanner and result in visible interference patterns in the projected image. In principle, the pulse acts as a stroboscope, highlighting a momentary image of the scanner, and may make interference patterns in the form of color bars or the intermediate fields (spokes) visible on the screen. If the pulse frequency is a sub-frequency of the frame rate, the interference pattern will be fixed, and if the lamp frequency is out of phase with the frame rate, the bars will roll across the screen.

An object of the present invention is to mitigate the above problem, and reduce image interference in a scrolling projector system.

These and other objects are achieved with a projector and a method of the type mentioned in the opening paragraph, wherein the lamp frequency is controlled so as to be related to the frame rate of the display device.